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A Revision of *Lespedeza* Subgenus *Lespedeza* (*Leguminosae*) of China

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Chinese species of the subgenus *Lespedeza* of the genus *Lespedeza* were revised and are recognized 15 species and one hybrid. A key to the species, an enumeration of the species with their synonymy and bibliography, descriptions and voucher specimens for newly recognized species in China, and taxonomic notes on some of the species, are provided. *Lespedeza gerardiana* Wall. ex Maxim. is confirmed to be included in the Chinese flora. *Lespedeza hispida* (Franch.) T. Nemoto & H. Ohashi, a new status, is proposed with new lectotypification of the basionym: *L. juncea* var. *hispida* Franch. The following taxa adopted in *Flora Reipublicae Popularis Sinicae* (FRPS) volume 41 (1995) are newly regarded as synonyms of the species in parenthesis: *L. mucronata* (*L. chinensis*), *L. potaninii* and *L. daurica* var. *shimadae* (*L. daurica*). *Lespedeza virgata* var. *macrovirgata* is regarded as *L.* ×*macrovirgata*. *Lespedeza juncea* is recognized as a species distributed in North China, Japan, Korea, Mongolia and Russia (East Siberia and Far East).

Key words: China, classification, *Desmodieae*, flora, *Hedysarum*, *Leguminosae*, *Lespedeza*, subgenus, taxonomy.

This paper is intended as a complement to the account of the Chinese species of the subgenus *Lespedeza* of the genus *Lespedeza* for Flora of China vol. 10. *Fabaceae* (Editors: Z. Y. Wu, P. H. Raven and D. Y. Hong in preparation). We present here items omitted in the Flora of China: an introduction to the taxonomic history of the subgenus, enumeration of the species with their synonymy and bibliography, and taxonomic notes on several species, especially *L. juncea* (L. f.) Pers. Newly recognized or reconfirmed species in China are described with voucher specimens and related discussions.

The genus *Lespedeza*

Lespedeza, consisting of about 35 species with about 30 natural hybrids, is distributed mainly in Eastern Asia (ca. 25 spp., with a few extending to temperate India and Malesia) and North America (ca. 12 spp., with about 30 putative natural hybrids) (Ohashi 2005). The genus established by Michaux in 1803 was systematized first by Maximowicz (1873) who divided it into three subgenera: *Campylotropis, Lespedeza* and *Microlespedeza*. At present, the subgenus *Lespedeza* corresponds to the genus *Lespedeza*, while *Campylotropis* and *Microlespedeza* are currently recognized as independent genera, *Campylotropis* and *Kummerowia*, respectively (Schindler 1928, Hutchinson 1964, Ohashi et al. 1981, Ohashi 2005).

The genus *Lespedeza* in the present circumscription was revised only by Schindler (1913). He recognized two sections in the genus: section *Eulespedeza* Maxim. and section *Macrolespedeza* Maxim. Nakai (1927) circumscribed the genus differently from Schindler including sections *Campylotropis, Eulespedeza* and *Macrolespedeza*, and he (1939) divided the section *Macrolespedeza* into two sections: *Heterolespedeza* Nakai and *Macrolespedeza*. Ohashi (1982) raised two sections created by Maximowicz under subgenus *Lespedeza* to the rank of subgenus in the genus *Lespedeza*: subgenus *Lespedeza* and subgenus *Macrolespedeza* (Maxim.) H. Ohashi. The subgenus *Macrolespedeza* sections *Heterolespedeza* and *Macrolespedeza*.

The two subgenera, *Lespedeza* and *Macrolespedeza* differ in morphology and ecological preference as follows. The subgenus *Lespedeza* is herbs or subshrubs having cleistogamous and chasmogamous flowers. The cleistogamous flowers are in fascicles in the axil of leaves. The chasmogamous flowers are usually less than 10 mm long on elongated racemes in the axil in upper parts of branches or in compound, terminal racemes, usually with a white to yellowish standard bearing a pair of reddish, purplish or bluish marks at the base of lamina, and subsessile to sessile legumes. Subgenus *Macrolespedeza* is shrubs or subshrubs, rarely large herbs, having only chasmogamous flowers that are usually more than 10 mm long in compound racemes, usually with a purplish red standard with dark purplish marks at the base of lamina, and stipitate legumes.

Distribution pattern of cleistogamous and chasmogamous flowers on an individual and morphological variation of cleistogamous flowers in an inflorescence were shown by Nemoto and Ohashi (1997) in *L. tomentosa*.

Subgenus *Lespedeza* extends to the whole area of distribution of the genus (Eastern Asia with a few extending to temperate India and Malesia, and North America), while subgenus *Macrolespedeza* is confined to Asia. Ecological features show a different tendency in preference of habitat between the subgenera. Both prefer to grow in open habitats, but subgenus *Lespedeza* favors fields or grassland, while subgenus *Macrolespedeza* prefers margins of bushes or forest. It may be supposed that adaptation for different kind of bee species in color, size and position of flowers and differentiation of pollination pattern have induced a differentiation between the two subgenera.

Subgenus *Lespedeza*

Schindler (1913) recognized 25 species in subgenus *Lespedeza* as section *Eulespedeza* at that time: 15 species in Asia and 10 in North America. North American species, all belonging to subgenus *Lespedeza,* were revised by Clewell (1966). Asian species of the subgenus have been studied separately in countries or in a floristic region usually as a part of a flora of the region. Recent contributions of such works are as follows: Bhutan (Grierson and Long 1987), China (Li and Chen 1995, Zhu et al. 2007), India including Myanmar and Sri Lanka (Sanjappa 1992) or South Asia (Kumar and Sane 2003), Indochina (Thuân 1987, Lock and Heald 1994), Japan and Korea (Nakai 1927), Japan (Kitamura and Murata 1961, Ohwi 1965a, 1965b, Ohashi 2001), Korea (Lee 1996, Choi 2007), Nepal (Ohashi

1979), Pakistan (Ali 1977), Russian Far East and Siberia (Pavlova 1989), and Taiwan (Huang and Ohashi 1977, 1993).

Results of molecular analyses of the genus *Lespedeza* based on RFLPs (Nemoto et al. 1995) and *trn*L-F region of cpDNA (Nemoto et al. in preparation) suggest a differentiation of species of the subgenus between Asia and North America. These results are in accord with differences in seedling morphology between them (Nemoto and Ohashi 1993).

Subgenus *Lespedeza* of China

Of the 15 species of subgenus *Lespedeza* Schindler (1913) recorded 12 from China. Recently, Li and Chen (1995) recognized 14 species in the *Flora Reipublicae Popularis Sinicae* (FRPS) volume 41, the most recent comprehensive treatment of the subgenus in China. We recognize here 15 species of which *Lespedeza gerardiana* Wall. ex Maxim. and *L. hispida* (Franch.) T. Nemoto & H. Ohashi (= *L. juncea* var. *hispida* Franch.) that are lacking in FRPS are treated here as a distinct species and *L. mucronata* Ricker and *L. potaninii* V. N. Vassil. that are adopted in FRPS are regarded as a synonym of *L. chinensis* G. Don and *L. daurica* (Laxm.) Schiudl., respectively. *Lespedeza* ×*macrovirgata* Kitagawa is recognized as a presumed hybrid between *L. tomentosa* (Thunb.) Siebold ex Maxim. and *L. virgata* (Thunb.) DC., although it is treated as a variety of *L. virgata* in FRPS.

Taxonomic treatment

Lespedeza Michaux, Fl. Bor.-Amer. **2**: 70 (1803); Maxim. in Trudy Imp. S.-Peterburgsk. Bot. Sada **2:** 345 (1873); Schindl. in Bot. Jahb. Syst. **49**: 570 (1913); Hutch., Gen. Fl. Pl. **1**: 487 (1964); H. Ohashi, Polhill & Schubert in Polhill & Raven, Adv. Leg. Syst. **1**: 300 (1981); Li & Chen in FRPS **41**: 131 (1995); H. Ohashi in Lewis & al., Leg. World: 435 (2005).

Subgen. **Lespedeza**: Maxim., l. c. 352 (1873), p. p., excl. sect. *Macro-Lespedeza*; H. Ohashi in J. Jpn. Bot. **57**: 29 (1982).

L. sect. *Lespedeza*; Maxim., l. c. 352 (1873), ut *Eu-lespedeza*; Schindl., l. c. 587 (1913), ut *Eulespedeza*; Li & Chen in FRPS **41**: 145 (1995).

L. sect. *Archilespedeza* Taub. (unranked) *Eulespedeza* Maxim.: Taub. in Engl. & Prantl, Nat. Pflanzenfam. 3, **3**: 332 (1894).

Subshrubs or herbs. Leaves pinnately 3-foliolate; stipules small, subulate or linear, persistent or caducous; stipels absent; leaflets entire, lateral nerves looped within margin. Inflorescences axillary, racemes, more or less elongated or reduced to fascicle; bracts persistent, with 2-flowers; bracteoles 2, persistent. Flowers dimorphic: chasmogamous or cleistogamous. Chasmogamous flowers: calyx campanulate, tube short, lobes 5; corolla exserted; standard oblong or obovate; wings oblong, straight, clawed, auriculate, slightly adherent with keel at center of lamina; keel-petals obtuse and incurved; stamens 10, equal, diadelphous, vexillary one free (9+1); ovary superior, 1-ovulate; style incurved; stigma terminal. Pods ovoid, obovoid, or ellipsoidal, rarely slightly globose, lenticular, indehiscent, reticulate-veined on lateral surfaces, 1-seeded. Cleistogamous flowers: entirely enclosed in calyx, calyx a little smaller than that of chasmogamous flowers; corolla free, rudimentary in various degrees, rarely somewhat different in shape and size; stamens rudimentary, rarely10 or often reduced in number or two, often lacking pollen sacs except adaxial two stamens; ovary1-ovulate; style strongly incurved, rudimentary, much reduced in size.

Key to the species in China

1a. Flowers all chasmogamous, usually more than 10 mm long, in compound racemes; standard usually pink to rose-purple, rarely yellowish or white; loments shortly stipitate; shrubs to subshrubs, rarely herbd .... [subgenus **Macrolespedeza**]

1b. Flowers chasmogamous and cleistogamous (except *L. forrestii*), usually less than 10 mm long (except *L. gerardiana*), in more or less elongated racemes of chasmogamous flowers with basal fascicles of cleistogamous flowers, or composed only of fasciculate racemes of cleistogamous flowers; standard white to yellowish or purplish; loments sessile or subsessile; herbs to subshrubs [subgenus **Lespedeza**] 2

2a. Stems procumbent to weakly ascending, spreading pilose, rarely appressed sericeous.. 3

2b. Stems usually erect or strongly ascending, mostly with appressed sericeous............. 5

3a. Leaflets narrowly obovate; stem short, usually less than 20 cm long; corolla pink to purplish red; cleistogamous flowers and pods unknown... *L. forrestii*

3b. Leaflets broadly obovate, broadly elliptic to orbiculor; stem elongated, more than 30 cm long; chasmogamous and cleistogamous flowers and pods well known... 4

4a. Leaflet apex rounded, with visible reticulate venation on upper surface; lateral nerves arcuate along margin; corolla yellow-white or white; plants densely spreading pilose .... *L. pilosa*

4b. Leaflet apex emarginate, without visible reticulate venation on upper surface; lateral nerves reaching margin; corolla reddish purple; plants spreading pilose, rarely appressed sericeous .... *L. fasciculiflora*

5a. Stems densely tomentose, distinctly striate; leaflets usually thick chartaceous; racemes with chasmogamous flowers long exserted from subtending leaf, with numerous cleistogamous flowers at base; corolla white to cream.................. *L. tomentosa*

5b. Stems appressed sericeous; leaflets papery to chartaceous, with or without visible reticulate veins on under surface; corolla white, yellowish, or pink to reddish purple..................................... 6

6a. Leaflets elliptic (ratio length: width 3:2), narrowly elliptic-obovate (ratio length: width 6:1–3:1) with visible (with lens) reticulate venation or a thin central vein between principle lateral veins; peduncle usually more than 2mm long 7

6b. Leaflets narrowly elliptic or narrowly obovate (ratio length: width 6:1–3:1) to linear (ratio length: width 12:1), without visible reticulate venation between principle lateral veins; inflorescence sessile or pedunculate; peduncle 2 mm or less (except *L. caraganae*)............ 12

7a. Leaflets elliptic (ratio length: width ca. 3:2) to narrowly elliptic (ratio length: width 3:1); calyx lobes more than 3 times as long as tube 8

7b. Leaflets narrowly elliptic-obovate (ratio length: width 6:1–3:1); calyx lobes ca. 2 times as long as tube 11

8a Leaflet with a thin central vein between principle lateral veins; inflorescence usually densely several- to ca. 10-flowered... 9

8b. Leaflet with reticulate venation between principle lateral veins; inflorescence laxly few flowered or densely flowered 10

9a. Flowers white; calyx lobes linear to narrowly triangular (ratio length: width 12:1–6:1); bracteoles longer than calyx tube; cleistogamous pods with caudate apex .... *L. chinensis*

9b. Flowers reddish purple; calyx lobes narrowly ovate (ratio length: width 6:1); bracteoles shorter than calyx tube; cleistogamous pods with rounded apex .... *L. floribunda*

10a. Leaflets elliptic (ratio length: width ca. 3:2); inflorescence laxly few flowered; peduncles filiform, glabrous; pedicel sessile to less than 1 mm long; bracteoles shorter than calyx tube .... *L. virgata*

10b. Leaflets narrowly elliptic to elliptic (ratio length: width 3:1–2:1); inflorescence densely flowered; peduncles pubescent; pedicel 1–3 mm long; bracteoles longer than calyx tube .... *L. daurica*

11a. Leaflets narrowly elliptic (ratio length: width ca. 3:1), large-sized ones more than 5 mm wide; pedicel ca. 1 mm long; lateral calyx lobes narrowly ovate acuminate, distinctly veined in flower .... *L. inschanica*

11b. Leaflets narrowly elliptic or narrowly obovate (ratio length: width ca. 6:1), large-sized ones less than 5 mm wide; pedicel 3–4 mm long; lateral calyx lobes narrowly triangular, invisibly veined in flower .... *L. juncea*

12a. Leaflets narrowly obovate (ratio length: width 6:1) above middle; flowers more than 10 mm long; calyx with lobes 5–6 mm long, bracteoles distinct, 4–5 mm long ... *L. gerardiana*

12b. Leaflets narrowly elliptic (ratio length: width 3:1) to linear (ratio length: width 12:1); flowers less than 10 mm long; calyx with lobes less than 3 mm long, bracteoles minute, less than 3 mm long 13

13a. Leaflets narrowly elliptic (ratio length: width 6:1) to linear; principle lateral veins reaching margin and then running upward along margin; lateral calyx lobes sharply narrowly triangular (more than 3 times as long as tube); peduncle 2 mm long or more .... *L. caraganae*

13b. Leaflets narrowly elliptic or narrowly obovate (ratio length: width 6:1–3:1); principle lateral veins not reaching margin but running upward within margin; lateral calyx lobes narrowly triangular or slightly narrowly ovate (less than 3 times as long as tube); peduncle sessile or less than 2 mm long 14

14a. Flowers reddish purple; corolla almost or more than 2 times as long as calyx; lateral calyx lobes narrowly ovate; under surface of leaflets densely sericeous with rather thick hairs .... *L. lichiyuniae*

14b. Flowers white; corolla 1.3 to 1.5 times as long as than calyx; lateral calyx-lobes narrowly triangular 15

15a. Undersurface of leaflets densely appressed or ascending pubescent; bracteoles 1.5–2.5 mm long, longer than calyx tube; calyx densely pubescent, lobes with 3–5 conspicuous veins in flower; corolla 1.3–1.5 times as long as calyx .... *L. hispida*

15b. Undersurface of leaflets sparsely appressed pubescent; bracteoles less than 1.5 mm long, almost equal to or shorter than calyx tube; calyx sparsely appressed pubescent; corolla more than 1.5 times as long as calyx .... *L. cuneata*

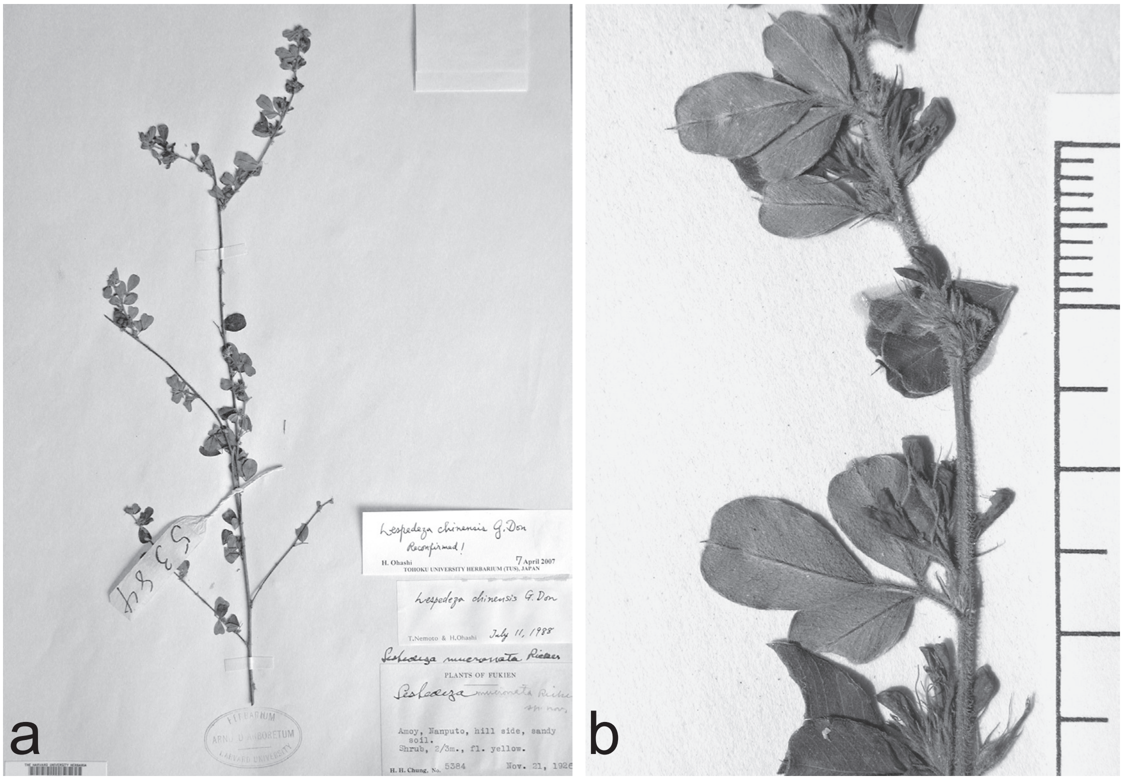
a
b
5384
Lespedeza chinensis G. Don
Reconfirmed!
H. Ohashi
7 April 2007
TOHOKU UNIVERSITY HERBARIUM (TUS), JAPAN
Lespedeza chinensis G. Don
T.Nemoto & H.Ohashi
July 11, 1988
Lespedeza mucronata Ricker
PLANTS OF FUKIEN
Lespedeza mucronata Ricke
sp. nov.
Amoy, Nanputo, hill side, sandy soil.
Shrub, 2/3m., fl. yellow.
H. H. Chung, No. 5384
Nov. 21, 192
HERBARIUM
ARNOLD ARBORETUM
HARVARD UNIVERSITY

Fig. 1. *Lespedeza chinensis* G. Don. a–b: *L. mucronata* Ricker. China: Amoy. 21 Nov. 1926. H. H. Chung 5384 (A–holotype).

1. **Lespedeza caraganae** Bunge, Pl. Mongholic.-Chin. **1**: 11 (1835); Schindl. in Bot. Jahrb. Syst. **49**: 602 (1913); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 354, fig. 138 p.p. (1989); Li & Chen in FRPS **41**: 155 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 192, fig. 291 (2001); H. Ohashi & al. in J. Jpn. Bot. **79**: 378, fig. 1 (2004); X.Y. Zhu & al., Leg. China Checklist: 175 (2007).

Distribution: Endemic to China: Gansu, Hebei, Henan, Liaoning, Nei Mongol, Shaanxi, Shandong. Recently this species was introduced to Japan (Ohashi et al. 2004).

2. **Lespedeza chinensis** G. Don, Gen. Hist. **2**: 307 (1832); Schindl. in Bot. Jahrb. Syst. **49**: 597 (1913); Huang & H. Ohashi in Fl. Taiwan **3**: 317, pl. 607 (1977), & loc. cit. ed. 2, **3**: 319, pl. 164 (1993); Li & Chen in FRPS **41**: 155, pl. 40: 4–8 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 191, fig. 290 (2001); X. Y. Zhu & al., Leg. China Checklist: 175 (2007).

L. formosensis Hosokawa in J. Soc. Trop. Agr. **5**: 287 (1933).

L. canescens Ricker in Lingnan Sci. J. **20**: 200 (1942).

L. mucronata Ricker in Amer. J. Bot. **33**: 257 (1946); Li & Chen in FRPS **41**: 153, pl. 40: 1-3 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 191, fig. 288 (2001).

L. chinensis var. *nokoensis* Ohwi in J. Jpn. Bot. **26**: 234 (1951).

Distribution: China and Taiwan.

Lespedeza mucronata Ricker was described based on a single specimen collected at Amoy (Fig. 1). Ricker (1946) characterized this species as "not resembling any other species of *Eulespedeza*". The specific epithet of the species suggests that he relied on its distinctness by its obovate to obcordate leaflets, although he regarded it as close to *L. elegans* Cambess. from India and Pakistan. He had not compared *L. mucronata* with *L. chinensis*, but the species is clearly referable to *L. chinensis*.

A form of *L. chinensis* with appressed hairs on stem was named var. *nokoensis* Ohwi. This form seems to be confined to Taiwan.

Masamune (1955) reported *Lespedeza chinensis* from the Ryukyus, Japan, as "Okinawa; Kunigami (?)" based on a record by "Sakaguchi, Gen. Ind. Fl. Okin. p. 55 (1924)". However, no documenting specimen is known as pointed out by Walker (1976) and there is no record of the species from the Ryukyus in the later works: Hatusima and Amano (1958, 1994), Hatusima (1971), Shimabuku (1997). We exclude the Ryukyus from the area of distribution of *L. chinensis*.

3. **Lespedeza cuneata** (Dumon de Courset) G. Don, Gen. Hist. **2**: 307 (1832); Benth, Fl. Hongk. 85 (1861); Huang & H. Ohashi in Fl. Taiwan **3**: 317, pl. 608 (1977), & loc. cit. ed. 2, **3**: 319, pl. 165 (1993); Li & Chen in FRPS **41**: 156, pl. 41: 9-10 (1995); H. Ohashi in K. Iwats. & al., Fl. Jap. **IIb**: 264 (2001); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 192, fig. 292 (2001); X. F. Gao in Fl. Yunnan. **10**: 577 (2006); X. Y. Zhu & al., Leg. China Checklist: 175 (2007).

Hedysarum sericeum Thunb. in Murray, Syst. Veg. ed. 14, 675 (1784); Thunb., Fl. Jap.: 287 (1784), non Mill. (1768).

Anthyllis cuneata Dum. Cours. in Bot. Cult. **6**: 100 (1811).

Asparatus cuneata (Dum. Cours.) D. Don, Prodr. Fl. Nepal.: 246 (1825).

Indigofera chinensis Vogel in Nov. Acta Acad. Leop.-Carol. Nat. Cur. 19, suppl. **1**: 14 (1843); Forbes & Hemsl. in J. Linn. Soc. Bot. **23**: 156 (1887).

Lespedeza argyrea Siebold & Zucc. in Abh. Akad. Muench. **4**: 120 (1845).

L. sericea Miq., Ann. Mus. Bot. Lugd. Bat. **3**: 49 (1867), & Prolus. Fl. Jap.: 237 (1867), as "*L. sericea* (Thunb.) Miq."; Maxim. in Trudy Imp. S.-Peterburgsk. Bot. Sada **2**: 368 (1873); Schindl. in Bot. Jahrb. Syst. **49**: 597 (1913), & in Pl. Wilson. **2**: 105 (1914); Rehder in J. Arn. Arb. **7**: 174 (1926).

L. juncea (L. f.) Pers. var. *subsessilis* Miq. in Ann. Mus. Bot. Lugd. Bat. **3**: 49 (1867); H. Ohashi in Wild Herb. **2**: 206 (1982).

L. sericea var. *latifolia* Maxim. in Trudy Imp. S.-Peterburgsk. Bot. Sada **2**: 369 (1873).

L. juncea var. *sericea* (Miq.) Forbes & Hemsl. in J. Linn. Soc., Bot. **23**: 181 (1887); Franch., Pl. Delavay.: 169 (1890); Merr. in Philipp. J. Sci. C. **5**: 94 (1910), as "var. *sericea* (Thunb.) Forbes & Hemsl."; Ali in Biologia **12**: 40 (1966), & Fl. W. Pakistan (100): 363 (1977), as "var. *sericea* (Thunb.) Lace & Hemsl.", p.p.; Pramanik & Thothathri in J. Jap. Bot. **58**: 333 (1983), as "var. *sericea* (Thunb.) Forbes & Hemsl."; Grierson & Long, Fl. Bhutan **1**(3): 683 (1987), as "var. *sericea* (Thunb.) Lace & Hemsl."; Yakovlev & al., Leg. N. Eurasia List: 86 (1996), as "var. *sericea* Miq."; Sanjappa, Leg. India: 204 (1992), as "var. *sericea* (Thunb.) Lace & Hemsl."; Thuan, Dy Phon, in Fl. Camb. Laos Vietn. **23**: 141 (1987), as " var. *sericea* (Thunb.) Lace & Hemsl.".

L. juncea var. *glabrescens* Franch., Pl. Delavay.: 169 (1890).

L. juncea subsp. *sericea* (Thunb.) van Steenis in Nova Guinea n. ser. **6**: 280 (1955).

L. juncea auct. non (L. f.) Pers.: Franch., Pl. Delavay.: 170 (1890), p. p. excl. var. *hispida* Franch.; Franch. & Sav., Enum. Pl. Jap. **1**(1): 103 (1873).

Distribution. China, Taiwan, Afghanistan, Pakistan, Bhutan, India, Indochina, Japan, Korea, Malesia, and Myanmar. Naturalized in Australia, Russia and N. America.

Circumscription of *Lespedeza cuneata* has been a matter of controversy. This species shows a wide range of morphological variation, and has been variously treated with *L. juncea* as shown in the synonymy above. However, these species are separable from each other: *L. juncea* having visible reticulate veins on the under surface of narrowly obovate to narrowly elliptic leaflets with an obtuse to retuse apex, longer pedicels (2 mm long or more), and densely pubescent fruits, *Lespedesa cuneata* has invisible veins, narrowly obovate to narrowly obtriangular leaflets with truncate apex, shorter pedicels (ca.1 mm long) and almost glabrous fruits. We recognize these two are distinct species from each other.

Lespedeza sericea Miq. is often erroneously regarded as a later homonym of *L. sericea* Benth., but the latter is invalid (nomen nudum). *Lespedeza sericea* Benth. in Miq., Pl. Jungh. 227 (1852) is based on *Oxyramphis sericea* R. Grah. ex Wall., Numer. List no. 5349A and 5349B (1831–32), of which the type specimens, Wallich 5349A, 5349B (K-W, n.v., micro-fiche TUS), are mixture of two species consisting of each two separate branches that are referable to *Campylotropis macrostyla* and *C. stenocarpa,* respectively.

The author of *L. juncea* var. *sericea* (Miq.) was published by Forbes and Hemsley (1887) without author names as "[*Lespedeza juncea*, Pers.] var. *γ*. sericea, Miq. in Ann. Mus. Bot. Lugd.-Bat. iii. p. 49 (species propria)." The authors, however, have been recorded as “Forbes & Hemsl.” or “Lace & Hemsl.” as cited above, but no reason is mentioned for adoption of Lace instead of Forbes in the original publication.

4. **Lespedeza daurica** (Laxm.) Schindl. in Repert. Spec. Nov. Regni Veg. **22**: 274 (1926); Rehder in J. Arn. Arb. **7**: 176 (1926); H. Ohashi & al. in Sci. Rep. Tohoku Univ. ser. 4 (Biol.) **39**: 228 (1988); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 351, fig. 137 p.p. (1989), as “*davurica*”; Huang & H. Ohashi in Fl. Taiwan ed. 2, **3:** 322 (1993); Li & Chen in FRPS **41**: 151, pl. 39: 1-7 (1995); Yakovlev & al., Leg. N. Eurasia Check-List: 85 (1996), as “*davurica*”; P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 190, fig. 287 (2001); X. F. Gao in Fl. Yunnan. **10**: 575, fig. 150, p.p., as “*dahurica*” (2006); X. Y. Zhu & al., Leg. China Checklist: 177 (2007), as “*davurica*”. [Fig. 2]

Trifolium dauricum Laxm. in Novi Comment. Acad. Sci. Imp. Petrop. **15**: 560, t. 30, fig. 5 (1771).

Trifolium dahuricum Pall., Reise **3**: Append. 321 (1776).

Hedysarum trichocarpum Stephan ex Willd., Sp. Pl. **3**(2): 1194 (1802).

Lespedeza trichocarpa (Stephan) Pers., Syn. Pl. **2**(2): 318 (1807); Schindl. in Bot. Jahrb. Syst. **49**: 606 (1913).

L. medicaginoides Bunge in Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans **2**: 93 (1835).

L. fauriei H. Lév. in Repert. Spec. Nov. Regni Veg. **7**: 230 (1909).

L. dielsiana Schindl. in Repert. Spec.

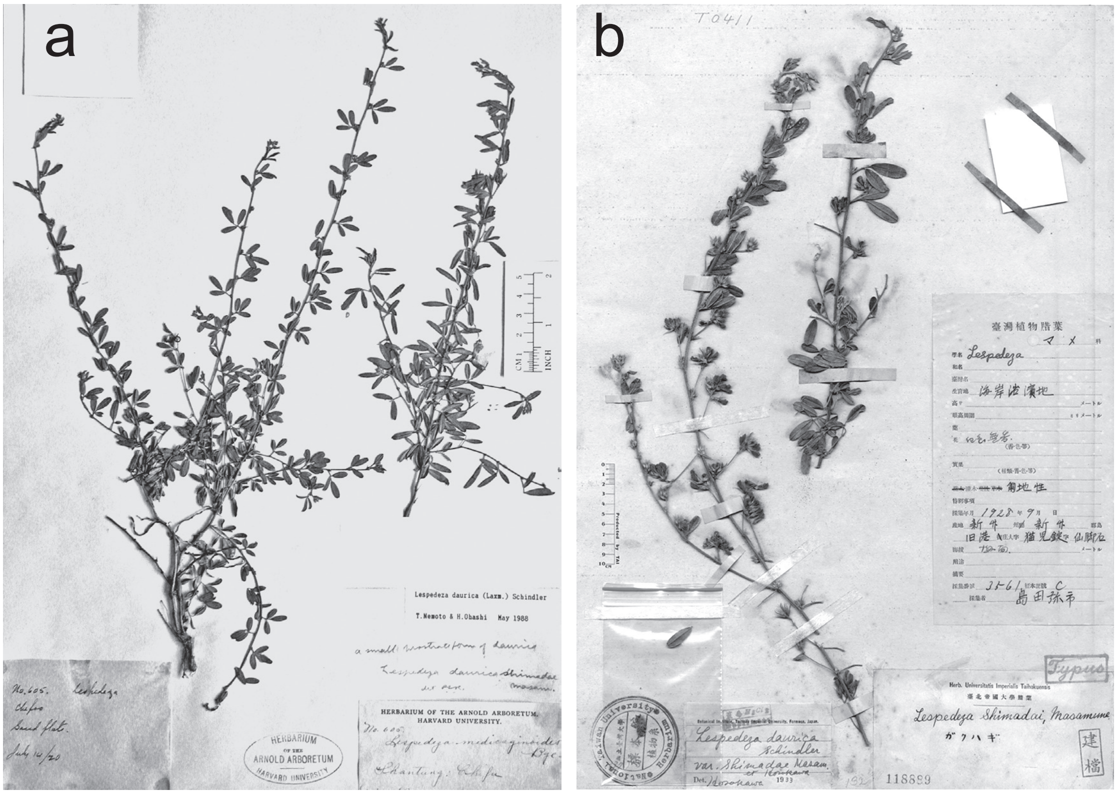
a
b
Lespedeza daurica (Laxm.) Schindler
T.Nemoto & H.Ohashi May 1988
HERBARIUM OF THE ARNOLD ARBORETUM HARVARD UNIVERSITY
Lespedeza
Lespedeza Shimadai, Masamune
Lespedeza daurica Schindler var. Shimadae Masam. et Hosokawa 1933
Typus
118889

Fig. 2. *Lespedeza daurica* (Laxm.) Schindl. a. A form referable to *L. potaninii* V. N. Vassil. Fujian: Shantung, Chifu. Cowdry 603 (A). b. *L. shimadae* Masam. Taiwan: Shintiku [= Hsinchu]. Sept. 1928. Yaichi Shimada 3561 (TAI–holotype).

Nov. Regni Veg. **10**: 404 (1912), & in Bot. Jahrb. Syst. **49**: 597 (1913).

L. feddeana Schindl. in Repert. Spec. Nov. Regni Veg. **10**: 405 (1912).

L. shimadae Masam. in J. Soc. Trop. Agric. **2**: 30 (1930), as "*Shimadai*".

L. daurica var. *shimadae* (Masam.) Masam. & Hosok. in J. Soc. Trop. Agric. **5**: 59 (1933), as "*Shimadai*"; Huang & H. Ohashi, Fl. Taiwan 3: 320 (1997).

L. potaninii V. N. Vassil. in Not. Syst. Herb. Inst. Bot. Acad. Sci. USSR **9**: 202 (1946); Li & Chen in FRPS **41**: 153, pl. 39: 10-11 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 191, fig. 289 (2001); X. F. Gao in Fl. Yunnan. **10**: 575 (2006); X. Y. Zhu & al., Leg. China Checklist: 184 (2007), as "Vassilcz.".

L. daurica var. *sessilis* V. N. Vassil. in Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR **9**: 202 (1946); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 352 (1989); X. Y. Zhu & al., Leg. China Checklist: 178 (2007).

L. dahurica var. *sinica* Ohwi in J. Jpn. Bot. **26**: 234 (1951).

L. daurica var. *prostrata* Z. Wang & P. Y. Fu in Illustr. Fl. NE Woody Pl.: 564 (1955).

L. daurica f. *prostrata* (Z. Wang & P. Y. Fu) Kitag., Neo-Lineam. Fl. Manshur. 405 (1979).

L. potaninii f. *breviracemi* S. L. Tung & Z. Lu, Bull. Bot. Res., Harbin **8**: 101 (1988).

L. daurica var. *potaninii* (V. N. Vassil.) Y. X. Liou, Fl. Desert. Reipubl. Popularis Sin.

2: 443 (1987); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 352, fig. 137 p.p. (1989).

L. daurica var. *beipiaoensis* P. H. Huang & J.S. Ma in Acta Phytotax. Sin. **25**: 369 (1987); X. Y. Zhu & al., Leg. China Checklist: 185 (2007).

L. daurica subsp. *huangheensis* C. J. Chen in Acta Phytotax. Sin. **30**: 376 (1992); X. Y. Zhu & al., Leg. China Checklist: 175 (2007).

L. daurica subsp. *potaninii* (V. N. Vassil.) C. J. Chen, Vasc. Pl. Hengduan Mts. **1**: 989 (1993).

L. gerardiana auct. non Grah. ex Maxim.: Franch. Pl. Delav. 169 (1899); H. Lév., Cat. Pl. Yunnan 158 (1916).

Distribution: China, Taiwan, Korea, Mongolia and Russia (Siberia and Far East). Recently introduced to Japan from China (Ohashi et al. 2003, Ohashi and Muramatsu 2008). Previous records of natural distribution in Japan (Nakai 1932, Ohwi 1965a, 1965b, Ohwi and Kitagawa 1983, etc.) are based on misidentification of a very similar species, *L. hisauchii* T. Nemoto & H. Ohashi (Nemoto and Ohashi 1999).

The specific epithet of *Lespedeza daurica* has been treated variously. The original epithet is *"dauricum"* as *Trifolium dauricum* Laxm., but this name was cited as *Trifolium davuricum* Laxm. in Index Kewensis. The first combination of the name in *Lespedeza* is *L. daurica* (Laxm.) Schindl., and this name was quoted in Index Kewensis suppl. 8 as it is. Yakovlev & al. (1996) cited *L. davurica* (Laxm.) Schindl. as the correct name, and regarded "dahurica" and "daurica" as orthographic variants. The correct epithet is "daurica" for *Lespedeza* as was originally proposed by Schindler (1926).

Lespedeza daurica is a conspicuously polymorphic species and had been given different names on various forms, but is distinct from other species in having larger bracteoles obviously extend calyx-tube and long acuminate or sometimes rather caudate calyx-lobes.

When described *Lespedeza potaninii,* Vassiljev (1946) characterized the typical form, *Lespedeza daurica* var. *genuine* V. Vassil., as having oblong or elliptic leaflets, 1.5–3 cm long, 0.8–1.5 cm wide, and peduncles of racemes shorter than or equal to leaves. *Lespedeza potaninii* was distinguished from the typical form by much branched stems, smaller thin leaflets (narrowly oblong 1.2–1.5 cm long, 0.3–0.5 cm wide), sparsely few-flowered racemes, and peduncles longer than leaves. However, these characters indicate *L. potaninii* is merely an ecological form growing in sunny dry areas: roadside, rocky places, or glassy fields (Fig. 2a).

5. **Lespedeza fasciculiflora** Franch., Pl. Delavay.: 169 (1890); Rehder in J. Arn. Arb. **18**: 207 (1937); Hand.-Mazz., Symb. Sin. **7**: 572 (1933); Lauener in Notes Roy. Bot. Gard. Edinburgh **30**: 249 (1970); Li & Chen in FRPS **41**: 146, pl. 37: 7 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 188, fig. 283 (2001); X. F. Gao in Fl. Yunnan. **10**: 572, fig. 149-2 (2006); X. Y. Zhu & al., Leg. China Checklist: 179 (2007). [Fig. 3]

L. floribunda var. *fasciculiflora* (Franch.) Schindl. in Fedde **23**: 354 (1927).

L. monnoyeri H. Lév., Cat. Pl. Yunnan: 158 (1916); Rehder in J. Arn. Arb. **13**: 328 (1932). [Figs. 3a–b]

L. fasciculiflora var. hengduanshanensis C. J. Chen in Acta Phytotax. Sin. **30**(4): 375 (1992); X. Y. Zhu & al., Leg. China Checklist: 179 (2007). [Fig. 3c]

L. floribunda auct. non Bunge.: Schindl. in Pl. Wilson. **2**: 105 (1914).

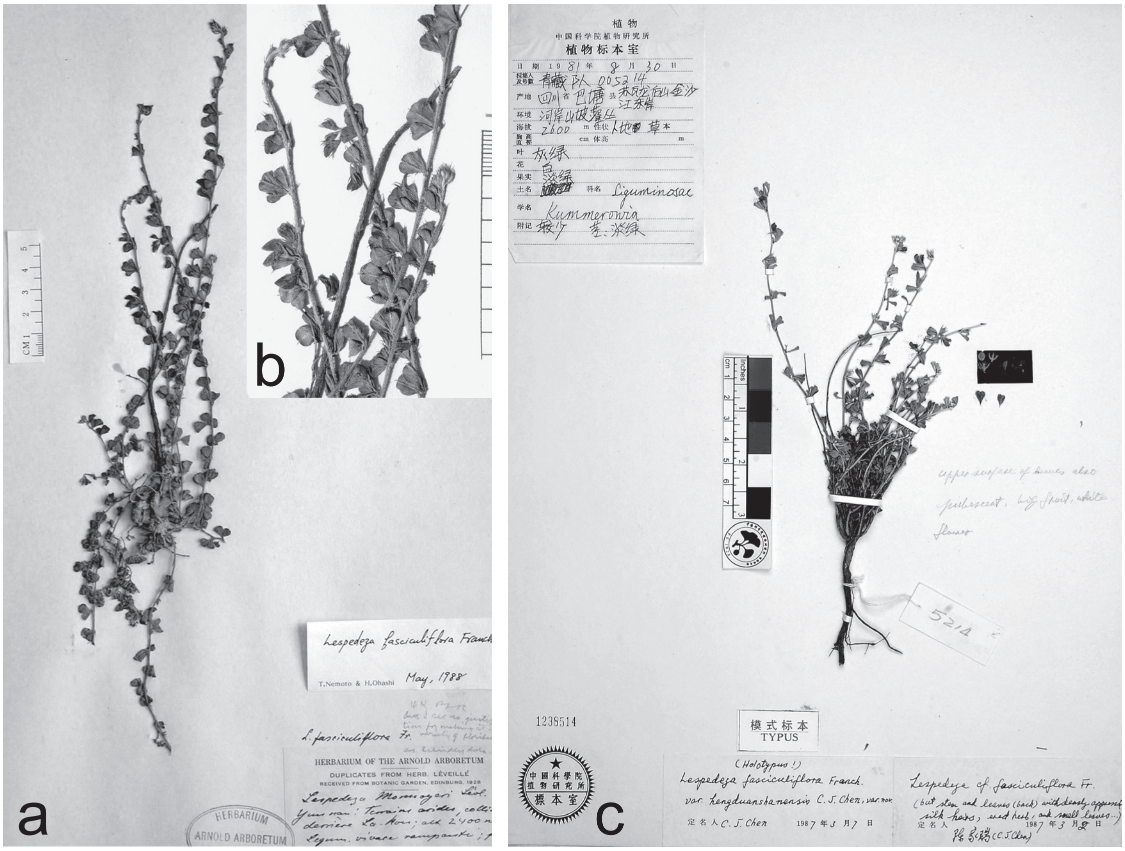
a
b
c
Lespedeza fasciculiflora Franch.
T.Nemoto & H.Ohashi May, 1988
HERBARIUM OF THE ARNOLD ARBORETUM
DUPLICATES FROM HERB. LÉVEILLÉ
1238514
模式标本
TYPUS
(Holotypus!)
Lespedeza fasciculiflora Franch. var. hengduanshanensis C. J. Chen, var. nov.
定名人 C. J. Chen 1987年3月7日

Fig. 3. *Lespedeza fasciculiflora* Franch. a–b. *L. monnoyeri* H. Lév. Yunnan. E. E. Maire (A–isotype). c. *L. fasciculiflora* var. *hengduanshanensis* C. J. Chen. Sichuan: Baitang. 30 Aug. 1981, Qinghai-Xizang Exped. 5214 (PE–holotype).

Distribution: Endemic to China: Guizhou, Sichuan, Xizang and Yunnan.

6. **Lespedeza floribunda** Bunge, Pl. Mongholic.-Chin. **1**: 13 (1835); Schindl. in Bot. Jahrb. Syst. **49**: 597 (1913), excl. *L. fasciculiflora* Frach.; Li & Chen in FRPS **41**: 148, pl. 38: 1-8 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 189, fig. 284 (2001); X. F. Gao in Fl. Yunnan. **10**: 574, fig. 150-1 (2006); X. Y. Zhu & al., Leg. China Checklist: 178 (2007).

L. floribunda var. *alopecuroides* Franch., Pl. Delavay.: 169 (1890).

L. dielsiana Schindl. in Repert. Spec. Nov. Regni Veg. **10**: 404 (1912).

L. stollasae Bailey in Gentes Herbarum **1**: 32 (1920), syn. nov.

Distribution: China, India and Pakistan.

Previous report of natural occurrence of *Lespedeza floribunda* by Nakai (1932) in Japan was erroneous based on misidentification of *L. bicolor* Turcz. (Ohashi and Nemoto 2003). Recently, however, the species has naturalized in Japan, introduced from China as roadside cover (Ohashi et al. 2003).

Lespedeza stollasae Bailey was characterized by Bailey (1920) as "lacking the panicled racemes of the *L. formosa* (*L. sieboldii*) allies" and was suggested by Li and Chen (1995) as similar to *L. floribunda.*

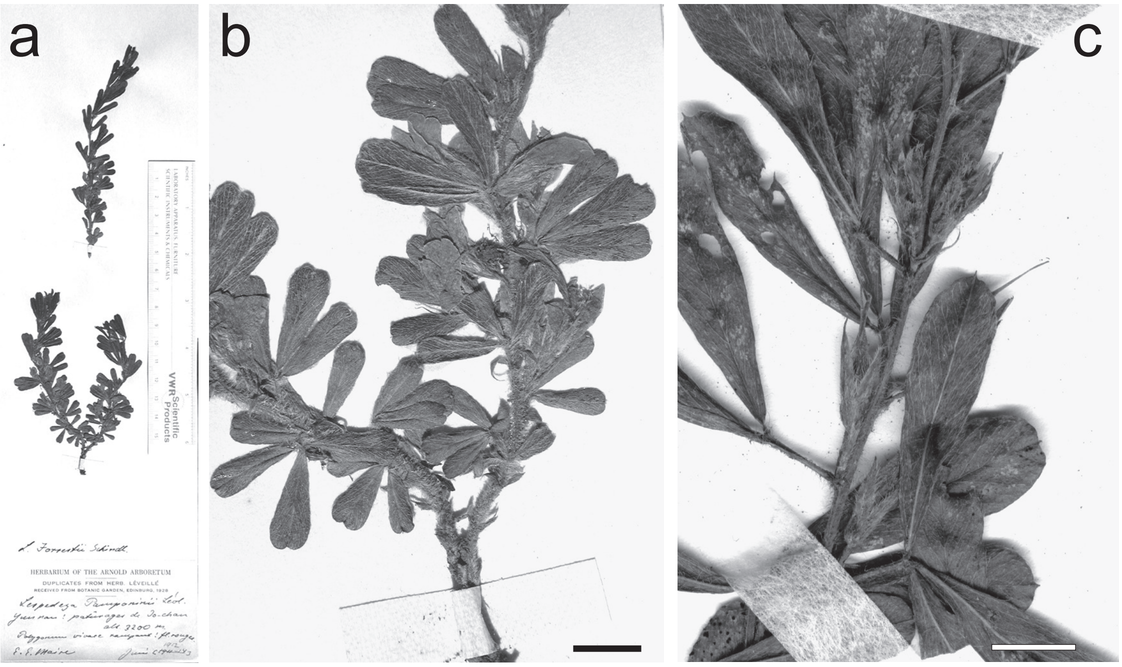
a
b
c
VWR Scientific Products
L. Forrestii Schindl.
HERBARIUM OF THE ARNOLD ARBORETUM
DUPLICATES FROM HERB. LÉVEILLÉ
RECEIVED FROM BOTANIC GARDEN, EDINBURG, 1928
Lespedeza Pampaninii Lévl.
Yunnan : pâturages de To-chan
alt. 3200 m.
Polygonum vivace rampant ! fl. rouges
E. E. Maire
1912
Juin

Fig. 4. *Lespedeza forrestii* Schindl. a–b. *L. pampaninii* H. Lév. Yunnan. E. E. Maire s.n. (A–isotype). c. Young fruits. Yunnan: Huadianba. 28 Aug. 1984. K. Iwatsuki & al. 1146 (TUS). Scale = 5 mm (b, c).

It is referable to *L. floribunda*.

7. **Lespedeza forrestii** Schindl. in Repert. Spec. Nov. Regni Veg. **10**: 406 (1912), & in Bot. Jahrb. Syst. **49**: 608 (1913); Li & Chen in FRPS **41**: 146, pl. 37: 1-6 (1995); X. F. Gao in Fl. Yunnan. **10**: 572, fig. 149 p.p. (2006); X. Y. Zhu & al., Leg. China Checklist: 181 (2007).

L. pampaninii H. Lév. in Bull. Acad. Int. Géogr. Bot. **25**: 48 (1915). [Figs. 4a–b]

L. variegata Cambess. var. *cinerascens* Franch., Pl. Delavay.: 170 (1890).

Distribution: Endemic to China: Sichuan and Yunnan.

Pods of this species have been unknown since its original description by Schindler (1912) and even in the most recent work on the species by Gao (2006). We could not find mature pods as well as cleistogamous flowers of the species in specimens we have examined so far in various herbaria, although young pods were found when the first author (H. Ohashi) made field work at Huadianba, Dali Baizu Zizhizhou, Yunnan (Fig. 4c).

8. **Lespedeza gerardiana** Wall. ex Maxim. in Trudy Imp. S.-Peterburgsk. Bot. Sada **2**: 373 (1873); Schindl. in Bot. Jahrb. Syst. **49**: 608 (1913); Ali in Biologia **12**: 39 (1966), & Fl. W. Pakistan (100): 360 (1977). [Fig. 5]

Herb or subshrub, erect or ascending, 20–30 cm tall. Stem densely appressed or ascending pubescent. Leaves alternate, stipulate, petiolate, 3-foliolate. Stipules linearly triangular on proximal part, obliquely narrowly triangular on distal part, obviously 3- or 4-nerved, 4.8–5.5 mm long, 0.7–1.1 mm wide, sparsely appressed or ascending pubescent. Petioles 1.6–2.2 mm long, densely appressed pubescent; pulvini 0.5–1.0 mm long, appressed

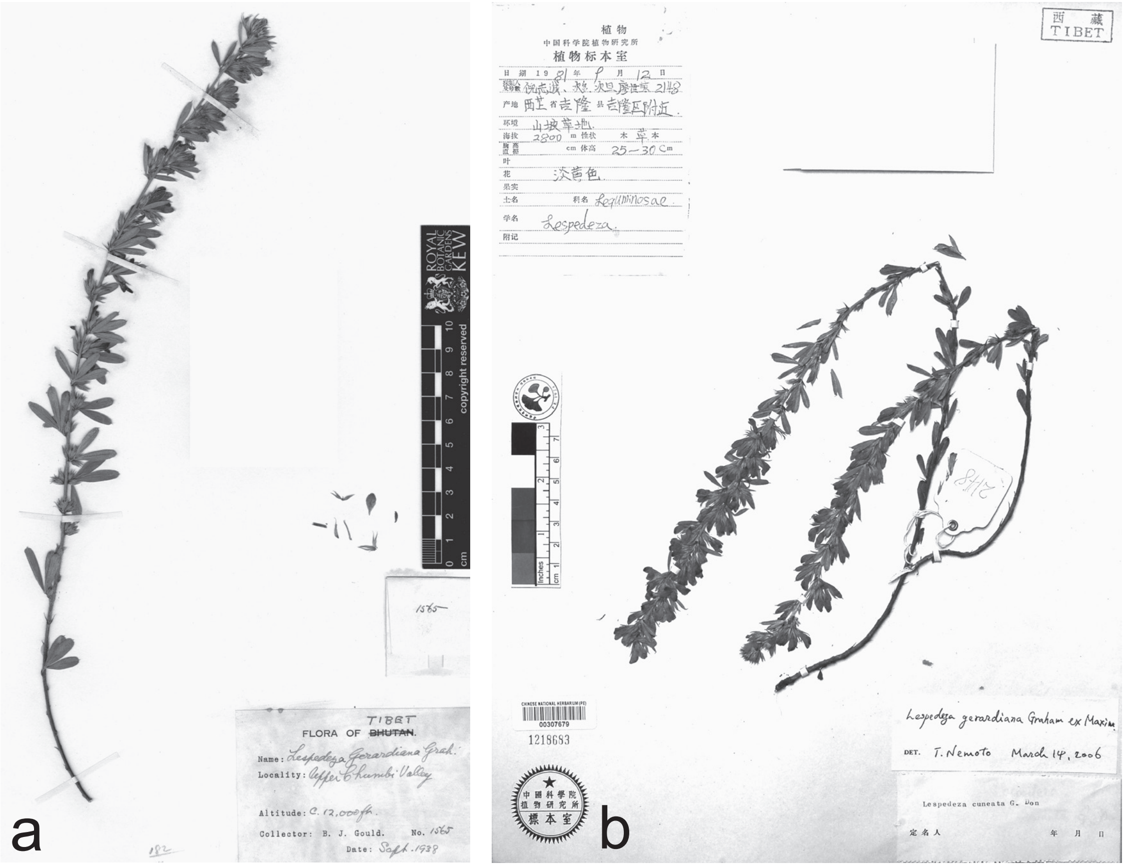

Fig. 5. *Lespedeza gerardiana* Wall. ex Maxim. a. Tibet: Upper Chumbi Valley, ca. 12,000 ft. Sept. 1938. B. J. Gould 1565 (K). b. Xizang: Gyirong Xian. 12 Sept. 1981. C.-C. Ni & al. 2148 (PE).

pubescent. Terminal leaflets slightly larger than lateral ones, narrowly obovate, 10–14 mm long, 2.5–4.4 mm wide, base cuneate, apex obtuse with a point, upper surface glabrous, lower surface densely sericeous, ciliate, pulvini 0.4–0.8 mm long, rachis 0.2–0.3 mm long, appressed pubescent; lateral leaflets narrowly obovate, 8.8–12.5 mm long, 2–4 mm wide, sessile, pulvinate, pulvini 0.2–0.5 mm long.

Inflorescences a lateral, 6-flowered raceme, peduncle ca. 1 mm long, 2 flowered at a node, densely appressed pubescent; primary bracts narrowly triangular–narrowly ovate, 2.7–4 mm long, sparsely appressed or ascending pubescent at distal part, ciliate; secondary bracts narrowly triangular or narrowly ovate, 3–4 mm long, sparsely appressed or ascending pubescent at distal part, ciliate. Pedicels 2.5–3.2 mm in flower, densely appressed or ascending pubescent; bracteoles 2 at base of calyx, narrowly ovate, with three or four evident veins, 4–4.8 mm long, ca. 0.9 mm wide, distinctly longer than calyx tube, sparsely appressed or ascending pubescent mixed with tangled hairs.

Flowers 11–13 mm long. Calyx 4-lobed, 7.3–9 mm long, densely appressed or ascending-pubescent outside; tube 1.5–2 mm long; upper lobe narrowly triangular, 2-toothed at apex, teeth 1/2–2/3 of the length of the lobe; lateral and lowest calyx lobes narrowly or linear triangular, almost equal to or slightly longer than upper lobes, 5.8–7 mm long, apex acuminate. Corolla pale yellow, 1.4–1.5 times as long as calyx: standard almost equal to keel-petals and longer than wings, 10.5–12.5 mm long, inflexed-auriculate at base, lamina 8.5–10.5 mm long, 5–6 mm wide, elliptic with a point at apex, abruptly narrowed to claw, claw ca. 2 mm long; wings shorter than other petals, 9.5–11 mm long, lamina 6–6.5 mm long, 1.5–2.0 mm wide, obliquely narrowly elliptic, apex obtuse, base slightly auriculate, claw ca. 3 mm long; keel-petals 10.5–12.5 mm long, lamina 6.5–8.5 mm long, 2.8–3.3 mm wide, obliquely elliptic, apex obtuse, abruptly narrowed to claw, claw ca. 4 mm long. Stamens 10, diadelphous, ca. 10.5 mm long, curved upwards in distal part, staminal tube with a pair of fenestrae at base on vexillary side, anther uniform, ovate, ca. 0.4 mm long. Pistil ca. 10.2 mm long; ovary obliquely narrowly elliptic, short stipitate, densely ascending puberulent on ventral margin and sparsely ascending puberulent on dorsal margin at distal part, uniovulate; style filamentous, curved upward in distal part, ascending puberulent on both margins; stigma terminal, slightly capitate, ciliate. Cleistogamous flower axillary, sessile, 6 flowered. Pods and seeds invisible.

Flower: September.

Habitat: In grasses on mountain slope or foot of mountain

Distribution: China (Xizang), Nepal, Bhutan, India and Pakistan.

Chinese specimens examined: **Xizang**. Gyirong Xian, near Gyirong, alt. 2800 m. 12 Sept. 1981. C.-C. Ni & al. 2148 (PE, Fig. 5b). Nyalam Xian, near Zham, alt. 2300 m. 23 Aug. 1972. Xizang Med. Pl. Exped. 1417 (PE). Upper Chambi Valley, c. 12,000 ft. Sept. 1938. B. J. Gould 1565 (K, Fig. 5a).

Lespedeza gerardiana was reported by Franchet (1890) based on Delavay's collections, "Delav. 2319 and 2740" collected in "Yunnan: prope Kimise, ad pedem montis Hee-chan-men (fl. 30 Aug. 1886)", but the record is based on misidentification of *Lespedeza daurica* (Laxm.) Schindl. The first correct record of *L. gerardiana* from China was made by Ali (1966) who reported this species from Tibet probably based on the specimen in Kew. This species is so far confined to Xizang in China.

9. **Lespedeza hispida** (Franch.) T. Nemoto & H. Ohashi, **stat. nov**.

Lespedeza juncea (L. f.) Pers. var. *hispida* Franch., Pl. Delavay.: 170 (1890). [Figs. 6, 7]

L. sericea Miq. f. *hispida* (Franch.) Schindl. in Bot. Jahrb. Syst. **49**: 599 (1913).

Erect or ascending herb, up to 80 cm tall. Stem densely spreading or ascending pubescent, rarely villose. Leaves alternate, stipulate, petiolate, 3-foliolate. Stipules linear or narrowly triangular, 2–6 mm long, sparsely appressed pubescent. Petioles 0.5–2.5 mm long, densely spreading or ascending pubescent, rarely sericeous; pulvini 0.5–0.8 mm long, densely spreading or ascending pubescent. Terminal leaflets slightly larger than lateral ones, narrowly obtriangular or narrowly obovate, 7–21.3 mm long, 2.2–6.5 mm wide, base attenuate or cuneate, apex truncate, emarginate, or obtuse, with a point at apex, upper surface glabrous, (young leaves sometimes sparsely pubescent), under surface densely appressed or ascending pubescent, pulvini 0.4–0.8 mm long, rachis 0.5–2.5 mm long, densely ascending pubescent; lateral leaflets narrowly obtriangular or narrowly obovate, 6.2–17 mm long, 2–4.8 mm wide, sessile, pulvini 0.4–0.8 mm long.

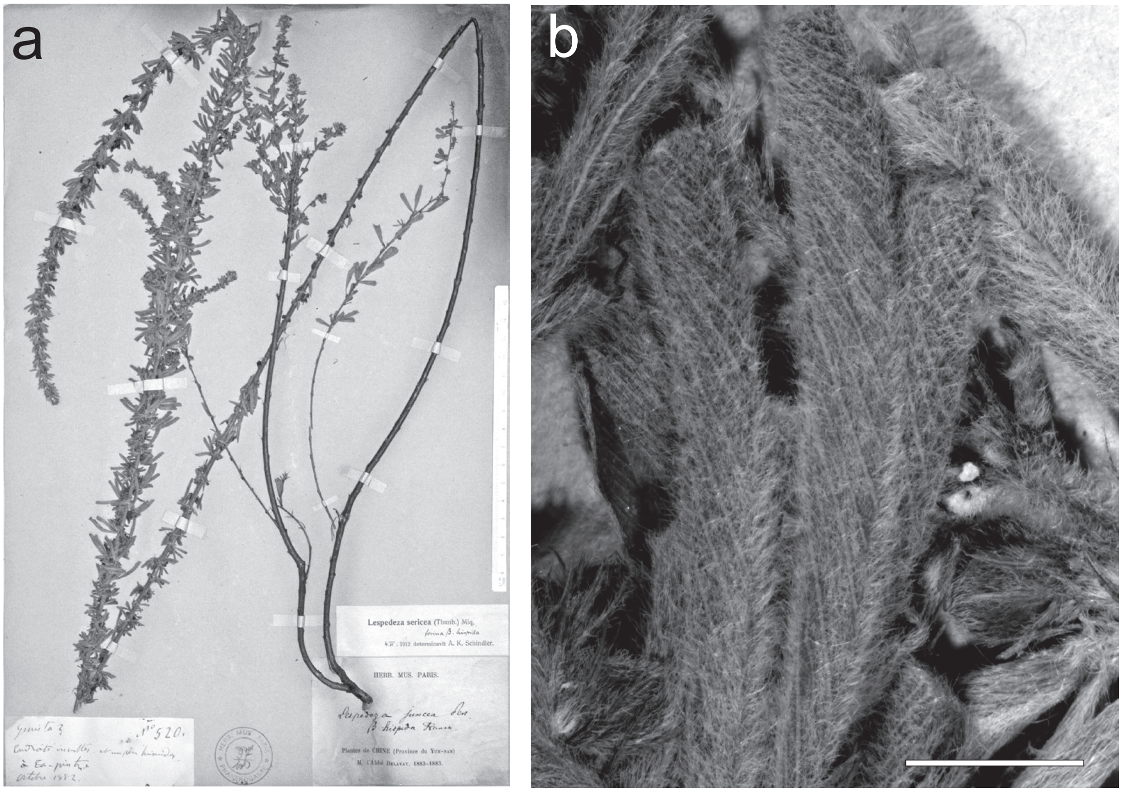
a
b
Lespedeza sericea (Thunb.) Miq.
forma β. hispida
4.VI. 1912 determinavit A. K. Schindler.
HERB. MUS. PARIS.
Lespedeza juncea Pers
β hispida Franch.
Plantes de CHINE (Province du Yun-nan)
M. l'Abbé Delavay. 1883-1885.
N° 520.
octobre 1882.

Fig. 6. *Lespedeza hispida* (Franch.) T. Nemoto & H. Ohashi. a. *L. juncea* (L. f.) Pers. var. *hispida* Franch. (P–lectotype). b. Leaflets of lectotype showing hispid and lateral nerves. Scale = 5 mm.

Inflorescences are axillary, raceme, 2–4-flowered, peduncle of chasmogamous flowers ca. 1 mm long, less than 1 mm long of cleistogamous flowers, 2 flowered at a node, densely ascending pubescent; primary bracts narrowly ovate, narrowly triangular or ovate, 1–1.3 mm long, appressed pubescent; secondary bracts narrowly triangular or narrowly ovate, 0.8–1.3 mm long, appressed pubescent. Pedicels 0.7–0.8 mm long in flower, densely appressed or ascending pubescent; bracteoles 2 at base of calyx, (1.5–)1.7–2.5 mm long, longer than calyx tube, sparsely appressed pubescent, margin ciliate.

Chasmogamous flowers 5.5–6 mm long. Calyx 4-lobed, 3.5–5 mm long, outer surface densely appressed or ascending pubescent; tube ca. 0.9 mm long; upper lobe triangular, 2-toothed at apex, teeth 4/5 or 3/4 of the length of the lobe; lateral and lowest calyx lobes linear, narrowly ovate or narrowly triangular, almost equal to upper lobes, 2.5–4 mm long, apex acuminate. Corolla white, 1.3–1.5 times as long as calyx; standard slightly shorter than or almost equal to keel-petals and obviously longer than wings, 5–5.7 mm long, base inflexed-auriculate, lamina ca. 4.5 mm long, ca. 2.6 mm wide, apex elliptic with a point, abruptly narrowed to claw, claw ca. 0.8 mm long; wings shorter than other petals, ca. 4.7 mm long, lamina 3.2 mm long, ca. 0.8 mm wide, narrowly or linearly elliptic, apex obtuse, base slightly auriculate, claw ca. 1.5 mm long; keel-petals ca. 6 mm long, lamina ca. 4.4 mm long, ca. 1.8 mm wide, obliquely obovate, apex obtuse, abruptly narrowed to claw, claw ca. 1.5 mm long. Stamens 10, diadelphous, 4.5–5.2 mm long, curved upwards in distal part, staminal tube with a pair of fenestrae at base on vexillary side, anther uniform, ovate 0.2–0.25 mm long. Pistil 4.5–5.2 mm long; ovary obliquely narrowly elliptic, short stipitate, appressed or ascending pubescent on ventral margins at distal part, uniovulate; style filamentous, curved upward in distal part, sparsely acending pubescent on both margin at dorsal part; stigma terminal, slightly ciliate and capitate.

Pods reddish brown or sometimes whitish by hairs. Chasmogamous pods ovate, apex acuminate with a long remnant of style, base truncate, shortly stipitate, 3.6–4 mm long, 2.3–2.5 mm wide, shorter than or almost equal to calyx, densely appressed, ascending or spreading pubescent; cleistogamous ones, 2.7–3 mm long, ca, 2 mm wide, slightly longer than calyx, circular, broadly elliptical or broadly obovate, apex obtuse to mucuronate, base widely cuneate, densely appressed or ascending pubescent, pedicel 1.2–1.5 mm long in fruit. Seeds pale green, 1.8–2 mm long, 1.3–1.5 mm wide, ovate; hilum rim arillate, ca. 0.25 mm in diameter, ovate.

Flower: July to September. Fruits: October to November.

Distribution: China (Yunnan and Xizang), Nepal, India, and Pakistan.

Chinese specimens examined: **Yunnan**. Tapin-tze, in incultis humidis, Oct. 1882, J. M. Delavay 520 (P–lectotype of *Lespedeza juncea* (L. f.) Pers. var. *hispida* Franch. designated here, K-isolectotype); loc. cit. Oct. 1882, J. M. Delavay s.n. (P); loc. cit. 10 Feb. 1882, J. M. Delavay s.n. (P); loc. cit. 6 Nov. 1884, J. M. Delavay s.n. (P); loc. cit. 5 Sept. 1885. J. M. Delavay 3013 (P); loc. cit. 5 Sept. 1888, J. M. Delavay s.n. (P). Dêqên Xian, Huann-fu-ping, A-tun-tze, Sept. 1935, C.-W. Wang 69279 (KUN). Lijiang Xian: Daju, 2500 m, 1963, Yunnan Tropical Plant Exped. s.n. (KUN); Shudi, 1550–1750 m, 7 Oct. 1987, K. Iwatsuki & al. 1522 (KUN). Luquan Xian, Luquan Xian, Erqu-Luobo-Dade, 1500 m, 18 Nov. 1952, P.-I Mao 1813 (KUN, PE). Heqing Xian: Baiya, 13 Sept. 1929, R.-C. Ching 24598 (KUN); Huangping Xiang, 1500 m, 17 Sept. 1990, X.-F. Gao 504 (KUN). **Xizang**. Gyirong Xian, Gyirong-qu, 2100 m, 15 July 1975, Qinghai-Xizang Exped. 6856 (KUN, PE). Medog Xian, Gyalhasa-qu, 1250 m, 12 Nov. 1982, B.-S. Li & S.-Z. Cheng 1739 (PE). E. of Tangmai, 2050 m, 25 Oct. 1961, Xizang Exped. 1798 (PE).

Lespedeza hispida is closer to *L. cuneata* than to *L. juncea*. It is distinguished especially in the flower and bracteole as shown in the key to this species.

Franchet (1890) published *Lespedeza juncea* Pers. (var.) γ. *hispida* Franch. based on a specimen collected at Tapin-tze. Nine sheets of specimens collected by Delavay that are referable to *L. hispida* are kept in P. These are, moreover, six kind of specimens distinguished by slight differences in the label as cited in the specimens examined above. Among them only Delavay 520 is labeled by Franchet himself as *"L. juncea* var. *hispida* Franch." Thus this specimen is apparently one of the syntypes of the variety. We designate here Delavay 520 (P) as the lectotype of the variety (Fig. 6a).

Franchet (1890) published at the same time another variety of *Lespedeza juncea*, "var. α. *glabrescens*" based on Delavay 520 collected at the same locality as var. *hispida*. However, the name "var. α. *glabrescens*" is not written on the specimen, Delavay 520 (P). We consider the citation of "Delavay 520" in the original publication of "var. α. *glabrescens*" to be a misprint.

Nemoto found a duplicate specimen of *L. hispida,* Delavay 520, in Kew. This

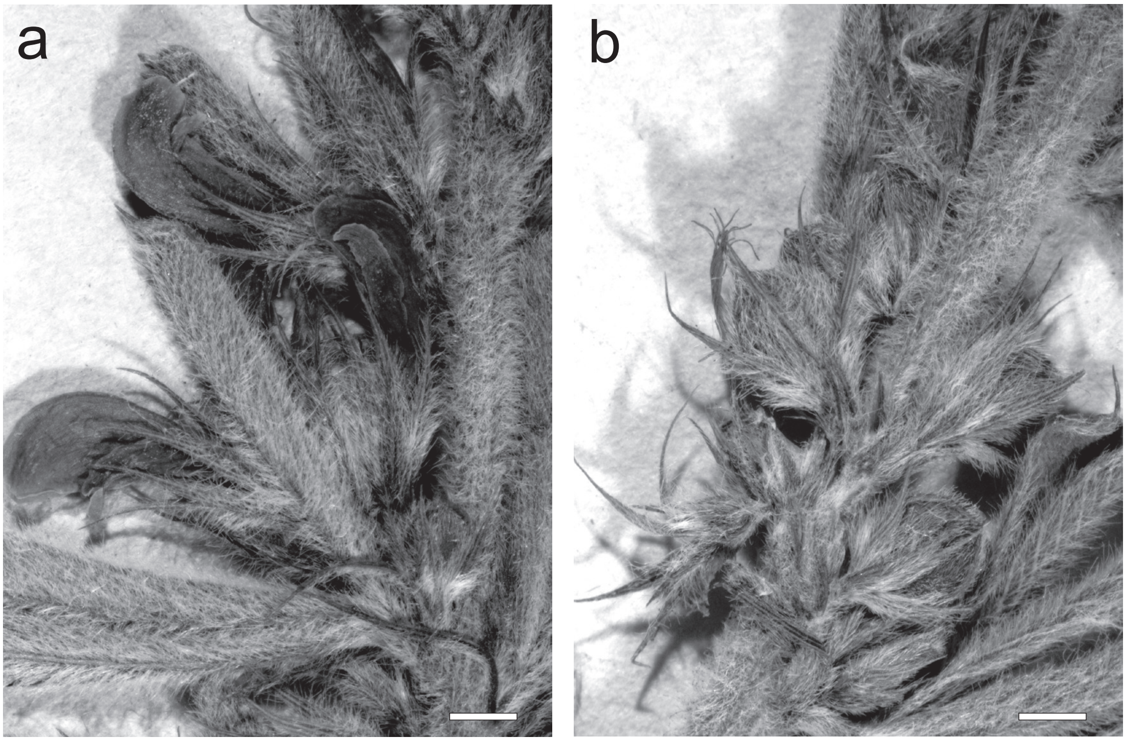

Fig. 7. *Lespedeza hispida* (Franch.) T. Nemoto & H. Ohashi. a. Flowers of lectotype. b. Pods of lectotype showing chasmogamous fruit (upper) and cleistogamous one (lower). Scale = 1 mm (a, b).

specimen (K) labeled *L. juncea* var. *hispida* Franch. is recognized as an isolectotype of *L. juncea* var. *hispida* Franch. On the other hand, Ohashi examined a specimen, Delavay 540 that is designated as the isotype of *L. juncea* var. *glabrescens* Franch. in A. This Delavay 540 (A) is referable to *L. cuneata* indicating *L. juncea* var. *glabrescens* Franch. is synonymous to *L. cuneata*.

Ali (1966, 1977) included specimens of *L. hispida* from Pakistan in *L. juncea* var. *sericea* (Thunb.) Lace & Hemsl. He was based exclusively on variability of density of hairiness, but these species are separable (see the other differences in the key in this paper).

10. **Lespedeza inschanica** (Maxim.) Schindl. in Bot. Jahrb. Syst. **49**: 603 (1913); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 354, fig. 138 p.p. (1989); Li & Chen in FRPS **41**: 158, pl. 41: 11 (1995); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 193, fig. 294 (2001); X. Y. Zhu & al., Leg. China Checklist: 181 (2007).

L. juncea (L. f.) Pers. var. *inschanica* Maxim. in Trudy Imp. S.-Peterburgsk. Bot. Sada **2**: 371 (1873).

L. cystoides Nakai var. *inschanica* (Maxim.) Nakai, *Lespedeza* Jap. Kor.: 95 (1927), nom. illegit.

L. cystoides var. *divaricata* Nakai, *Lespedeza* Jap. Kor.: 95 (1927), nom. illegit.

L. hedysaroidea Kitag. var. *inschanica* (Maxim.) Kitag., Lineam. Fl. Manshur.: 288 (1939), nom. illegit.

L. inschanica var. *flava* S. L. Tung & Z. Lu in Bull. Bot. Res., Harbin **8**(4): 101, fig. 2: 2-3 (1988); X. Y. Zhu & al., Leg. China

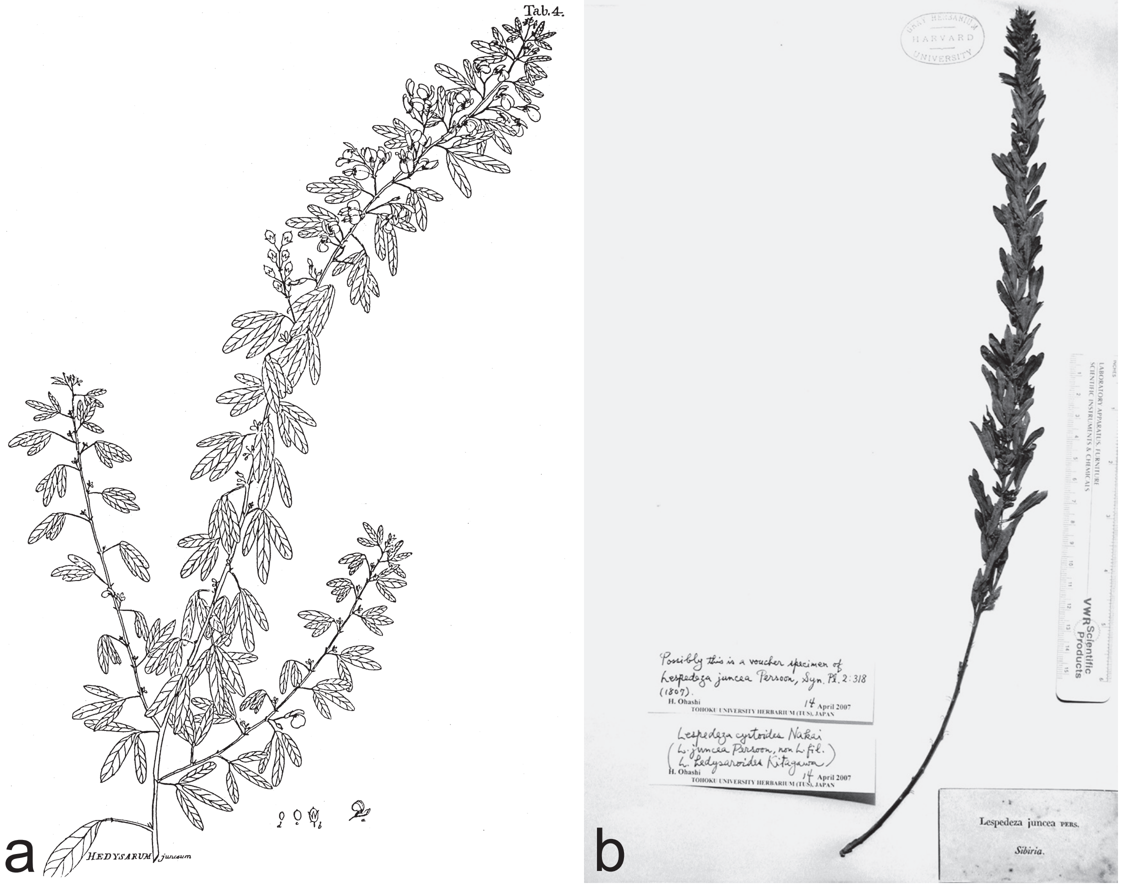
Tab.4.
HEDYSARUM junceum
a
b
HARVARD UNIVERSITY
Possibly this is a voucher specimen of Lespedeza juncea Persoon, Syn. Pl. 2: 318 (1807).
H. Ohashi 14 April 2007
TOHOKU UNIVERSITY HERBARIUM (TUS), JAPAN
Lespedeza cystoides Nakai
(L. juncea Persoon, non L. fil.)
(L. hedysaroides Kitagawa)
H. Ohashi 14 April 2007
TOHOKU UNIVERSITY HERBARIUM (TUS), JAPAN
Lespedeza juncea PERS.
Sibiria.
VWR Scientific Products

Fig. 8. *Lespedeza juncea* (L. f.) Pers. a. Lectotype of *Hedysarum junceum* L. f., Dec. Prima Pl. Horti Upsal.: 7, t. 4 (1762). b. *L. juncea*. Sibiria, probably a voucher specimen of Persoon, Syn. Pl. **2**(2): 318 (GH).

Checklist: 182 (2007).

Distribution: China and Korea.

Japan is erroneously included in the distribution area of *Lespedeza inschanica* in Chinese references cited above probably because of the misidentification of this species to *L. cuneata* by Schindler (1913: on page 604). However, recently seeds of true *L. inschanica* have been imported to Japan from China for greening on roadsides of newly developed roads or lands in Japan (Ohashi et al. 2003).

11. **Lespedeza juncea** (L. f.) Pers., Syn. Pl. **2**(2): 318 (1807); DC., Prodr. 2: 348 (1925), p. p., excl. syn. cit. *Hedysarum sericeum* Thunb. & *Anthyllis cuneata* Dum. Cours.; Schindl. in Bot. Jahrb. Syst. **49**: 604 (1913); Charkevicz, Pl. Vasc. Orient. Extr. Soviet. **4**: 202 (1989); Li & Chen in FRPS **41**: 156, f. 41: 1-8 (1995); H. Ohashi in K. Iwats. & al., Fl. Jap. **IIb**: 264 (2001); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 193, fig. 293 (2001); X. Y. Zhu & al., Leg. China Checklist: 182 (2007). [Fig. 8]

Hedysarum junceum L. f., Dec. Prima Pl. Horti Upsal.: 7, t. 4 (1762); L, Sp. Pl. ed. 2, **2**: 1053 (1763); Willd., Sp. Pl. **3**(2): 1194 (1802).

[*Trifolium cytisoides* Pall., Reise **3**:

Append. 266 (1776), nom. nud.].

T. hedysaroides Pall., Reise **3**: Append. 751, t. Dc. f. 3A (1776), nom. superfl.

Lespedeza juncea f. *umbrosa* Kom. in Trudy Imp. S.-Peterburgsk. Bot. Sada **22**: 604 (1904).

L. juncea var. *subsericea* Kom. in Trudy Imp. S.-Peterburgsk. Bot. Sada **22**: 605 (1904).

L. cytisoides Nakai, *Lespedeza* Jap. Kor.: 94 (1927), as "*cystoides* Nakai, comb. nov. [Basionym]: *Trifolium cystoides* Pall.", non Benth. (1854), nom. superfl. [Or, this name may possibly be regarded to be *L. cystoides* Nakai nomen novum, but the name is also superfluous].

L. cystoides var. *umbrosa* (Kom.) Nakai, *Lespedeza* Jap. Kor.: 95 (1927), nom. illegit.

L. cystoides var. *subsericea* (Kom.) Nakai, *Lespedeza* Jap. Kor.: 96 (1927), nom. illegit.

L. hedysaroides Kitag., Lineam. Fl. Mansh.: 288 (1939) ut "(Pall.) Kitag."; Fl. URSS **13**: 380 (1948); Kitag., Neo-Lineam. Fl. Mansh.: 406 (1979); H. C. Fu in Fl. Intramongol. ed. 2, **3**: 355, fig. 139 p.p. (1989).

L. hedysaroides var. *subsericea* (Kom.) Kitag., Lineam. Fl. Mansh.: 289 (1939), nom. illegit; H. C. Fu in Fl. Intramongol. ed. 2, **3**: 358 (1989); Ohwi & Kitag., New Fl. Jap.: 896 (1992).

L. hedysaroides var. *umbrosa* (Kom.) Kitag., Lineam. Fl. Mansh.: 289 (1939), nom. illegit.

L. hedysaroides Ricker in Lingnan Sci. J. **20**: 199 (1942), non Kitag. (1939).

L. juncea var. *oblanceolata* Ali in Biologia **12**: 42 (1966).

Distribution: Northern China (Gansu, Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Shandong, Shanxi), Japan, Korea, Mongolia and Russia (East Siberia and Far East).

Circumscription and nomenclature of *Lespedeza juncea* (L. f.) Pers. has long been controversial. The lectotype of *Hedysarum junceum* L. f. was selected by Ali (1966) the illustration, t. 4 in Dec. Prima Pl. Horti Upsal.: 7 (Jarvis 2007). The shape of leaflets was described as "lanceolate" in the original publication and was illustrated narrowly elliptic on t. 4 (Fig. 8a), although Ali (1966) erroneously characterized *Lespedeza juncea* (L. f.) Pers. var. *juncea* as "leaflets obovate" at the same time.

Native locality of the type of *Hedysarum junceum* L. f. is uncertain. The species was described by Linné filius (1762) as "habitat in India? Semina hujus a Cl. D:no David van Royen anno 1761 missa suere." Origin of the seed was merely suggested as India. The seed might have been collected by David van Royen in 1761 from a plant cultivated in a garden in Holland. Simultaneously Linnaeus (1762) in the second edition of Species Plantarum recorded *H. junceum* as "habitat in India". However, Willdenow (1802) in Species Plantarum **3**(2) (on page 1194) cited the habitat of *H. junceum* as Siberia and Tataria.

Persoon (1807) described *Lespedeza juncea* as "foliol. sublinearibus subtus strigoso-pubescentibus, racem. axillaribus, leguminib. laevibus, cal. aequantibus. *Hedysarum junceum*. Willd. p. 1194. Lin. Dec. 1. t. 4. Hab. in Saibiria, Tataria" (Fig. 8b). De Candolle (1825) revised its distribution as India, Australia and Japan to Siberia and Tataria, because he regarded *L. juncea* as conspecific with *L. cuneata*. Maximowicz (1873) distinguished both species by "viridis, foliola obtuse" in *L. juncea*, whereas by "sericea, foliola retusa" in *L. cuneate*, and defined the area of distribution of *L. juncea* as "E.Sibiria, Mongolia, Mandshuria, China (Pekin, Petschili et Schantung)." Schindler (1913) indicated the distribution of *L. juncea* as E. Siberia, Manchuria, Mongolia, and North China.

Nakai (1927) thought similarly to Linnaeus (1763) that *H. junceum* came from India, and plants from Siberia are a different species from *H. junceum*. He referred the Siberian plant to *Trifolium cytisoides* Pallas and made a new combination of *L. cytisoides* (Pallas) Nakai (erroneously as *L. cystoides*). He characterized his *L. cytisoides* in having acute or acuminate leaflets, racemes, elongated pedicels and pilose legumes and distinguished it from *L. cuneata* by 3–5-veined calyx lobes against 1-nerved of the latter.

Ali (1966) regarded the *Lespedeza juncea* complex as represented by a single species, *L. juncea*. He divided the species into four varieties: var. *juncea*, var. *variegata* (Camb.) Ali, var. *oblanceolata* Ali, and var. *sericea* (Thunb.) Lace & Hemsley. He considered var. *juncea* as having obovate leaflets and native to “W. Pakistan, Punjab, N. W. Province; Kashmir; India and Chamba” and var. *oblanceolata* with oblanceolate leaflets occurring in Siberia, China to Japan. However, the lectotype of *Hedysarum junceum* has narrowly elliptic leaflets and is similar to var. *oblanceolata,* not var. *juncea*. His application of the name “*juncea*” to Pakistan and Indian plants was inconsistent with the features of the type. Pramanik and Thothathri (1983) stated that typical *L. juncea* does not occur in India.

We recognize that *L. juncea* is separable from Indian representatives of the *L. juncea* complex (*L. aitchisonii* Ricker, *L. kanaoriensis* Cambess., and *L. variegata* Cambess.) generally in shape and reticulation of leaflets, densely pubescent fruits, cleistgamous fruits shorter than calyx and broad calyx lobe. It is distributed in northern China, Japan, Korea, Mongolia and eastern Russia (East Siberia and Far East).

12. **Lespedeza lichiyuniae** T. Nemoto, H. Ohashi & T. Itoh in J. Jpn. Bot. **82**: 223 (2007).

Distribution: Endemic to China (Anhui, Chongqing, Gansu, Guizhou, Henan, Hubei, Hunan, Jiangsu, Shaanxi, Sichuan, and Yunnan) and introduced to Japan (Aichi and Ehima Prefectures) and Korea (Seoul).

The epithet commemorates Chi-yun Li (= Ji-yun Li), a Chinese taxonomist and one of the authors of the genus *Lespedeza* in the Flora Reipublicae Popularis Sinicae vol. 41 (1995). The species is newly recorded from Korea.

13. **Lespedeza pilosa** (Thunb.) Siebold & Zucc. in Abh. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. **4**(2): 121 (1843); Schindl. in Bot. Jahrb. Syst. **49**: 607 (1913); Li & Chen in FRPS **41**: 145, pl. 37: 8-9 (1995); H. Ohashi in K. Iwats. & al., Fl. Jap. **IIb**: 263 (2001); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 188, fig. 282 (2001); X. F. Gao in Fl. Yunnan. **10**: 571 (2006); X. Y. Zhu & al., Leg. China Checklist: 184 (2007).

Hedysarum pilosum Thunb. in Murray, Syst. Veg. ed. 14, 675 (1784); Thunb., Fl. Jap.: 288 (1784).

Desmodium pilosum (Thunb.) DC., Prodr. **2**: 337 (1825).

Lespedeza pilosa var. *latifolia* Koidz. in Acta Phytotax. Geob. **9**: 72 (1940).

L. nantcianensis Pampanini in Nuov. Giorn. Bot. Ital. **17**: 400 (1910).

Distribution. China, Japan and Korea.

14. **Lespedeza tomentosa** (Thunb.) Siebold ex Maxim. in Trudy Imp. S. -Peterburgsk. Bot. Sada **2**: 376 (1873); Schindl. in Bot. Jahrb. Syst. **49**: 622 (1913); Charkevicz, Pl. Vasc. Orient. Extr. Soviet. **4**: 203 (1989); Li & Chen in FRPS **41**: 150, pl. 39: 8-9 (1995); H. Ohashi in K. Iwats. &

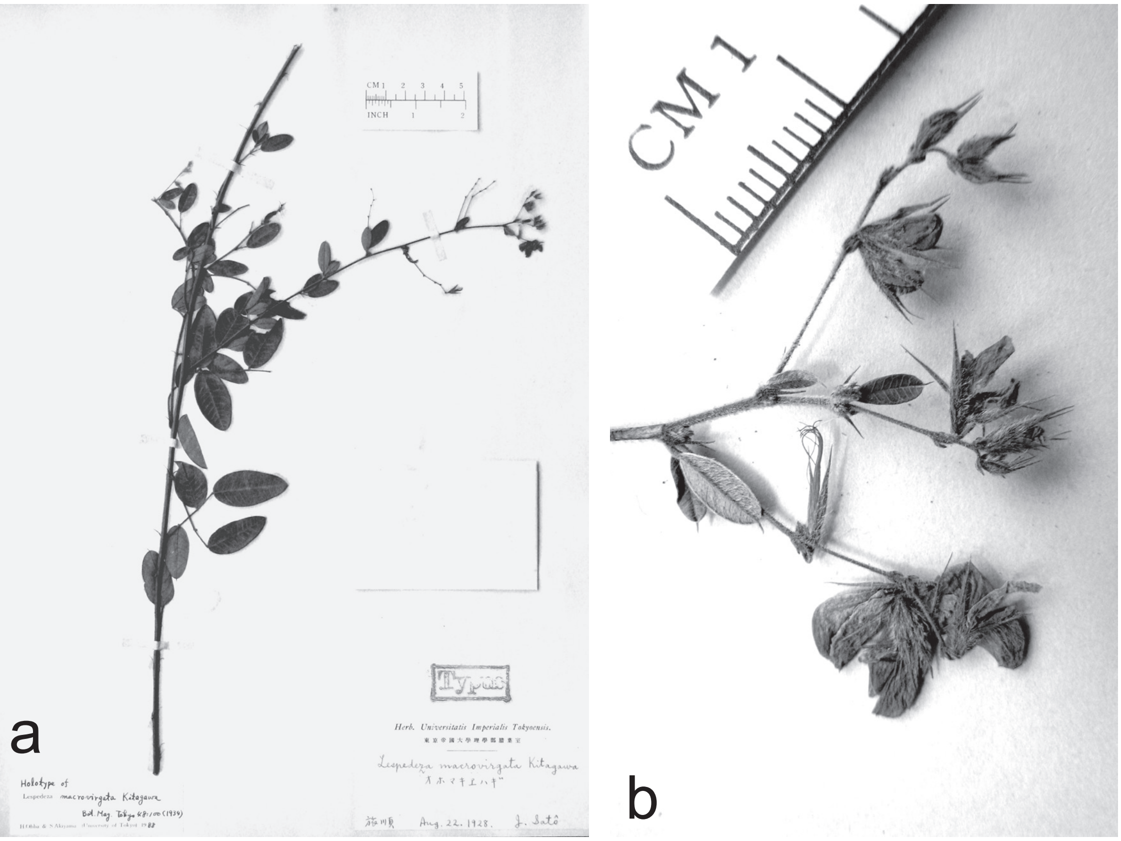
CM 1 2 3 4 5
INCH 1 2
Typus
Herb. Universitatis Imperialis Tokyoensis.
東京帝國大學理學部植物學教室
Lespedeza macrovirgata Kitagawa
オホマキエハギ
旅順 Aug. 22. 1928. J. Satô
a
Holotype of
Lespedeza macrovirgata Kitagawa
Bot. Mag. Tokyo 48: 100 (1934)
H. Ohba & S. Akiyama (University of Tokyo) 1988
CM 1
b

Fig. 9. *Lespedeza ×macrovirgata* Kitag. a-b. Liaoning: Lushun. 22 Aug. 1928. J. Satô s n. (TI–holotype).

al., Fl. Jap. **IIb**: 263 (2001); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 190, fig. 286 (2001); X. F. Gao in Fl. Yunnan. **10**: 574, fig. 150 p.p. (2006); X.Y. Zhu & al., Leg. China Checklist: 186 (2007).

Hedysarum tomentosum Thunb. in Murray, Syst. Veg. ed. 14, 675 (1784); Thunb., Fl. Jap. 286 (1784).

H. villosum Willd., Sp. Pl. **3**(2): 1181 (1800).

H. coriaceum Poiret in Lam., Enc. Bot. **6**: 418 (1804).

Lespedeza villosa (Willd.) Pers., Synops. Pl. **2**: 318 (1807); DC., Prodr. **2**: 349 (1825); Franch. & Sav., Enum. Pl. Jap. **1**: 102 (1873); Forbes & Hemsl. in J. Linn. Soc. **23**: 183 (1887).

Desmodium tomentosum (Thunb.) DC., Prodr. **2**: 337 (1825).

L. macrophylla Bunge, Pl. Mongh. Chin. 10 (1835).

L. hirta Miq., Prolus. Fl. Jap. 237 (1867), non Hornem. (1815).

L. tomentosa var. *globiracemosa* S. L. Tung & Z. Lu, Bull. Bot. Res., Harbin **8**: 101 (1988); X. Y. Zhu & al., Leg. China Checklist: 184 (2007).

Distribution. China, India, Japan, Korea, Mongolia, Nepal, Pakistan, and Russia (Far East).

15. **Lespedeza virgata** (Thunb.) DC., Prodr. **2**: 350 (1825); Schindl. in Bot. Jahrb. Syst. **49**: 607 (1913); Huang & H. Ohashi in Fl. Taiwan **3**: 322, pl. 610 (1977), & loc. cit. ed. 2, **3**: 322, pl. 167 (1993); Li & Chen in FRPS **41**: 148, pl. 38: 9-11 as var.

virgata (1995); H. Ohashi in K. Iwats. & al., Fl. Jap. **IIb**: 263 (2001); P. H. Huang in P. Q. Li & al., Higher Pl. China **7**: 189, fig. 285 (2001); X. Y. Zhu & al., Leg. China Checklist: 187 (2007).

Hedysarum virgatum Thunb. in Murray, Syst. Veg. ed. 14: 675 (1784); Thunb., Fl. Jap.: 288 (1784).

Lespedeza swinhoei Hance in Ann. Sci. Nat. ser. 5, **5**: 210, t. 5 (1866).

Distribution: China, Taiwan, Japan, Korea, and Russia Far East.

Presumed hybrid

Lespedeza ×macrovirgata Kitag. in Bot. Mag. (Tokyo) **48**: 100, fig. 13 (1934), pro sp. [Fig. 9]

L. virgata var. *macrovirgata* (Kitag.) Kitag., Lineam. Fl. Manshur. 289 (1939); X. Y. Zhu & al., Leg. China Checklist: 187 (2007).

Kitagawa (1934) described *Lespedeza macrovirgata* Kitag. based on a single specimen. As a result the habit whether it is erect or prostrate is unknown. He suggested the species as a hybrid between *L. virgata* and *L. daurica*, whereas Ohashi (2001) supposed it as a hybrid between *L. virgata* and *L. pilosa* or *L. tomentosa*. Judging from the dense hairness of the plant, shape and venation of leaflets and larger flowers, *Lespedeza macrovirgata* apparently differs from *L. virgata,* while the feature of inflorescence is similar to *L. virgata*. The nature of indumentum of the plant is similar to *L. tomentosa*, and is more densely hairy than *L. daurica*. Hairiness and venation pattern of the under surface of leaflets are most similar to *L. tomentosa.* The calyx is 5-7 mm long, larger than that of *L. virgata,* and is similar to *L. daurica* or *L. tomentosa*. We tentatively regard this taxon as a hybrid between *L. virgata* and *L. tomentosa.*

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大橋広好[a]，根本智行[b]，大橋一晶[c]：**中国産ハギ属ハギ亜属（マメ科）の分類**

中国産のハギ属ハギ亜属を分類学的に再検討した．本論文は英文版 Flora of China vol. 10, *Fabaceae*: *Lespedeza* subgenus *Lespedeza* の基礎となるもので，ハギ亜属の特徴と研究史を整理し，学名の文献を引用し，各種についての分類学上のノートを記録した．これらは Flora of China では省略され，学名は正名の原発表文献だけが引用され，その後の参考文献や異名の文献などは省略される方針となっている．一方，各種の記載は，今回新しく加えた2種を除いて，Flora of China に含められることになるので，本論文では省略した．中国のハギ属は全体では中国植物誌41巻 (1995) に発表された扱いが最新のものであった．ここではハギ亜属として14種2変種が認められている．我々は，その内の2種1変種を既知の種の異名とみなし，一方で *Lespedeza gerardiana* Wall. ex Maxim., *L. hispida* (Franch.) T. Nemoto & H. Ohashi, *L. lichiyuniae* T. Nemoto, H. Ohashi & T. Itoh（本誌 **82**: 223. 2007で発表）を加えた．また，中国植物誌の変種を雑種とみなした．したがって，合計は15種と1雑種となった．これらの種の区別について新しく検索表を作成した．*L. gerardiana* と *L. hispida* については記載をつけ，証拠標本を挙げた．ハギ亜属の中で特に問題の多かった *L. juncea* (L. f.) Pers. シベリアメドハギについて，分布と学名とを調べ直した．原記載以来この種の原産地がインドかあるいはシベリアかが問題であったが，本研究では中国北部，モンゴル，シベリア東部，ロシア極東地方，朝鮮半島，日本に分布する種であるとした．

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